Mechelecly

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The MECHELECIV STAFF

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Mail may be addressed to The MECHELECIV, c/o School of Engineering.

CALENDAR for NOVEMBER

1 Homecoming Dance

5 Society Meetings

12 Theta Tau (long)

19 Sigma Tau (long)
The MECHELECIV STAFF

26 Theta Tau (short)
Engineers Council

The Engineering Frame of Mind

The engineering student is placed at an advantage over other students in that his rigorous training in thinking and solving problems in the classroom may be applied with a definite advantage to other problems entering his educational career.

The big problem at hand is: how may you best plan your time so that you will benefit to the fullest advantage from your college eduction. Its approach may be devided into several parts, each deserving careful consideration in order that you may satisfy your particular interests and desires.

Paramount in your objective of education should be your purpose in coming to college, and unless this be furthering your knowledge and thinking capability along engineering lines, you will be wasting your time as well as that of the professors and administrators of the university.

In order that you may reach this goal most efficiently and effectively, you should give it most of your time and energy if you are a full time student. Plan this time carefully, allow for study and recreation as well, as your mind should not be overcrowded with conflicting thoughts for constructive thinking and effective absorption of knowledge. For this and other reasons, don't rush through your education. During the summer months, relieve your mind from the strain of studying, get away from the text books and classrooms for a while, and return in the fall refreshened and capable of doubling your efforts on the work ahead. You will find that each year will require more studying and preparation as you progress through college.

It was by no means intended that studying should demand all of your time, a college education is more than that. Outside activities such as student organizations, fraternities, and church functions are a vital component of a well rounded education. Participate in the activities of your choice, and make your college education a living memory. And last but not least, support your school, The George Washington University, its ideals, social and athletic functions, all contribute towards the foundation of a mature education.

F.A. HOWARD ELECTED AS ALUMNI TRUSTEE

Mr. Howard, donor of five thousand dollars for a Lectureship, has been elected to serve as alumni trustee for three years. He received the Bachelor of Science in Mechanical Engineering from the University in 1911, and the Bachelor of Laws in 1914. He is a director of the Ethyl Corporation and Dixco Company, and had the principal responsibility for building up and organizing one of the largest organizations in the industrial world, the Standard Oil Development Company.

ENGINEERING FOR HOMECOMING

Photo by Folse

Technician of the American Amplifier and Television inspecting some of the mixing equipment, similar to that which will be used for the Homecoming Dance at the Armory.

"It's so big!"

"People will get lost!"

"The band will never be heard!"

These are remarks students made as they gasped with awe upon entering the D.C. National Guard Armory, the site of The George Washington University Homecoming Dance.

But next Saturday evening, on November 1st, these same people, emotionally moved by the melodious strains of Claude Thornhill and his orchestra, will have forgotten their remarks. The Armory will have taken on new glamour, soft colored lights will have transformed its hangar appearance into that of a cozy ballroom; six 50 watt high fidelity speakers with crossover network, mounted on two 25 foot steel towers will insure that the sweet voice of beautiful Fran Warren, famous singing star with Claude Thornhill, will reach the ear of everyone. This equipment, including 300 watts of Class A power amplification and four position mixers, is valued at $2,000, and will be installed by the American Amplifier and Television Company.

Come on out, and witness for yourself, the results of engineering ingenuity when applied to The Homecoming Dance, on November 1st.

TELEVISION TRENDS

LARRY BROWN

At the end of the War the electronics industry focused its attention on more and practical television with the result that regularly scheduled programs are on the air in many cities at the present time.

Some of the recent developments which have made television a reality instead of a laboratory novelty might well be discussed.

The most important is concerned with the clarity of a television representation. This is directly dependent upon the number of scanning lines, which ranges between 400 and 500 in most present day construction. Electronic scanning has replaced the earlier mechanical scanning systems, and the development of several new pick-up tubes has furthered the state of the art to almost perfection.

Next in importance is the frame frequency rate which must be great enough to overcome the retentivity of the human eye. If this frequency is about 30 frames per second, it is generally considered ample.

Speech-picture synchronization has been mastered with the development of new electronic circuits, many of which had their birth in wartime radar.

In order to get a band width large enough for both speech and video signals it was necessary to confine transmission to the very high frequency ranges of 50 to 108 megacycles and 162 to 294 megacycles for commercial stations.

The one nemesis of television as a commercial giant at the moment is the quasi-optical or horizontal-length transmission on the high frequency ranges. This limitation calls for an enormous expenditure upon relay stations and network coaxial cable hook-ups. Nevertheless, the potentialities of the field have caused a huge expansion of facilities and in a few more years television will be in every home and at a price comparable to the good radio sets of today.

ΣT WITH OUR SOCIETIES ΘT

M.F. HODGES

At the opening of the school year 1947-48, the opportunity returns to upper-classmen to renew their oft-shaken vows to "get better grades this year" or to get into the activities of their professional society's student branch. Those students who work full-time and attend school in the evening find it difficult and often impossible to achieve both desired goals, the incompatibility of high grades with extra-curricular activity on a limited time budget usually proving too much of a problem to solve. However, night students as well as full-time day students can participate in these worthwhile programs if due thought is given to incorporating such activities into their school schedule. The importance of participation in the programs of the professional societies on the G. W. Campus as a means of rounding out the experience of the student by presenting scientific papers, securing the cooperation of associates, in organizing group activities, and in discovering and organizing his own abilities often cannot be estimated until after graduation, when such extraneous abilities, not tangible results of the required curricula, make appreciable differences in the degree of success attained in the chosen field.

One purpose of honor societies in college life is to stimulate and foster an atmosphere conducive to scholastic attainment and camper us leadership. Sigma Tau Fraternity is such a national honor society, which recognizes scholastic achievement, sociability, and practicality among engineers. Xi Chapter of Sigma Tau was chartered at this university in 1921 and has continuously since that time recognized during their junior and senior years the scholastic engineers. Membership in the fraternity is based on junior standing, and members are selected from the upper third, scholastically, of the total junior and senior enrollment in the School of Engineering. The requirements of practicality and sociability must further be met, and broadening experiences of membership in one of the four student branches of the professional societies during the "green years" as freshmen and sophomores provides adequate background for meeting these requirements.

In recognition of the attainments, Xi Chapter of Sigma Tau awards each year a medal to the engineer achieving the highest scholastic average as a freshman. For these not so fortunate, the chapter offers free tutoring which usually enables embryo engineers to dispel the dark clouds of half-comprehension which bedevil so many beginners.

Thus it can be seen that Sigma Tau is an important influence in the engineering activities at G.W.U., working with and for the men who have chosen the disciplines of engineering, to further their careers, reward their efforts, and to stimulate their minds to new heights of achievement.

DON BLANCHARD

From Theta Tau to all you new members of the engineering school - Welcome! Look to you in the coming battle of the books, but don't neglect your social instincts - Look to Theta Tau.

For the benefit of you to whom Theta Tau is just Greek, I'll say a few words about us. Theta Tau is a national professional engineering fraternity, the first such engineering fraternity ever founded. Its purpose is developing and maintaining a high standard of professional interest and a close relationship among its members. We are proud of our local chapter and the high standing it holds in the national organization.

This past June, Brother Pritchett, concluding that we all need a vacation, took us fishing on The Bay. Brother Fenton won all the various fishing "pools", and Brother Thomasson consumed the most beer and won everybody's money at poker, and the rest of us enjoyed a gay old time. Pritchett's ability as a fisherman is now, however, in doubt.

The Chapter is already preparing for its Fall Banquet, Initiation, and Dance, on Saturday, October 18, 1947. At that time we will welcome Herberts Murray, Dwight Hastings, Frank Cullen, and Robert Manville into the fold. Looks like a big evening for the Theta Tau's.

We'll dispense with braggadocio here - just watch and learn of us as you meander through the school year, and in turn we'll watch and learn of you.

DICK SHAW

The George Washington Student Chapter of the American Society of Civil Engineers extends its welcome to the engineering freshmen, and invites those in the civil and bachelor of science to join our chapter.

The American Society of Civil Engineers was founded in 1852. Since then it has grown and now its membership is composed of thousands of professional engineers-men who are actively engaged at every level and branch of the profession. These men are joined in a society whose policy is to foster professional, technical, and social activities which will benefit the profession and its members.

One of these activities is the sponsoring of student chapters in the leading engineering schools. Membership in these student chapters is open to each person enrolled in a civil of bachelor of science curricula. The only financial obligation is a small membership fee.

WITH OUR SOCIETIES

The student chapter meets once a month. These meetings are designed to acquaint the members with each other and to present interesting programs on various engineering topics. During the year there will be several trips to nearby points of interest: cement or steel plants, bridges or buildings under construction, ordnance, water, and sewage installations. Guest speakers and movies will be presented on important topics. Student members are entitled to the Society's magazine at a reduced rate; and have the privilege of attending the parent chapter meetings. Each year there is competitive presentation of student papers.

After each meeting a refreshment and bull-session is held and once or twice a year the chapter gives a little party where all cry in each others (or the professor's) egg-nog.

For the chapter to best serve its function, it needs the active interest of each student in civil engineering, and it feels that it can help each of them, particularly lower classmen. The freshman courses are designed to lay a foundation for the more technical work, and as such do not present the student to actual engineering problems.

The chapter offers you the opportunity to meet the guys who are sweating out the same courses you are, to envy the ones who are waiting for the ink to dry on their sheepskins, and to learn what an engineer is and to see some of his work.

So why not join us, develop those interests in your profession, and have a good time doing it.

H.H. MURRAY

The American Society of Mechanical Engineers extends welcome to the new members of the Engineering School. Your interest in the professional society that represents your field whether it be the A.S.M.E. or one of the other societies, can be active and constructive. These societies are run by the students for their benefit. They furnish a means of getting acquainted with your fellow students as well as being a source of information in many and varied fields. Those who are already in the societies expect and hope to have a very successful year this year but the society needs your support and help.

Again, welcome to the school and best wishes for a happy stay here and success in your endeavors.

IN NEXT ISSUE: ALUMNI NEWS

Want ad: Will trade - one good I.E.S. study lamp for comfortable bed. Am transferring from Engineering to Business Administration.

J.A. LERECHE

Mr. Antell, a new member of the electical engineering faculty, is replacing Professor Akers as adviser to the student branch of the A.I.E.E. The speaker for the next meeting, on November 5, will be Mr. Bob Wiley, from the Sylvania Electric Company who will speak on illumination problems.

E.A. BECK

The I.R.E. Charter is on its way and should arrive within a month. It was held up because this chapter did not have a sponsor. Mr. Thomas of the E.E. Department has taken that position.

The election of officers scheduled for our last meeting was postponed until the next meeting so that the new members might become better acquainted. Besides the elections, Mr. W.F. Dietz will speak on: Opportunities in Westinghouse and The Graduate Training Program. All societies are welcome to attend.

The I.R.E. is the baby of the engineering societies at this university, but we hope to make it the fastest growing. Being registered for a communications course is not a prerequisite for membership. Just an interest in radio and related sciences is required. If you are interested, make it a point to attend our next meeting, on October 29, at 8:15 P.M., in Government 102.

Cop: "How did you puncture this tire?"
Driver: "Ran over a milk bottle."
Cop: "Didn't you see it in time?"
Driver: "Aw, the kid had it under his coat."

ENGINEERING EDUCATION - 1950 MODEL

PROFESSOR AKERS

American progress in engineering has in my opinion, come about as the result of an attitude of mind as much as the natural result of applied scientific progress. This is well illustrated by an English friend who after about a year in this country commented that the greatest difference between the two countries, as he saw it, was that in England when a certain thing had been done successfully in a certain way for a sufficient period of time, that fact was regarded as sufficient evidence that the way was the best way. Whereas in America, when something had been done in a certain way no matter how successfully, for a very much shorter period of time, the feeling was that general progress now made a better way possible.

As a further example, take the concept of standards in industry.

Ordinarily, when we speak of a standard we think of something fixed and static, in industry, however, the concept is effectively the exact opposite. A study is made of a method, a process, a routine, the performance of a machine, or what have you, and as a result of that study a standard is established. The concept of that standard is, that as of now, it is the best we know, go ahead and find a better. Thus the standard becomes a target, a challenge; par for the course. A proposed change need only be measured against that standard and proved superior to be accepted.

Engineering education, in my opinion, should be subjected to the same periodic analysis, and I further believe that such an analysis is overdue. I make this statement not because engineering education as it now operates is wrong, or even greatly faulty, but because it has remained so long so highly standarized that, again as a matter of personal philosophy, I believe a careful re-evaluation of allthe factors will disclose that it can be better done - now. One of the things that impressed me when I returned to engineering teaching in 1942, after an absence of twenty-four years, was the little change that had occured. There were the same major divisions, essentially the same course curriculums, even the text books were much the same. In as dynamic field as engineering this of itself seems anachronistic.

In designing a new machine or in re-designing an old one the first effort is to outline as fully as possible the function or functions which the machine will perform. A single purpose machine, no matter how intricate, is relatively simple and an analysis of its performance, routine. It is in the multipurpose machines that the task becomes complex and an analysis difficult. In an engineering curriculum we are designing a course of study the product of which will differ as widely as the student who take it. Each of whom in turn will be subjected to all the variations that a complex economic and social civilization will impose. Thus I doubt if anyone is capable of saying more than "in my opinion, this will prove better".

We can however outline reasonably clearly the field in which the engineer of 1950 will function and the purpose of our engineering course should be to assist the student to acquire the fundamental knowledge that will be needed to enable him to develop to his full capacity whatever may be his position in that field.

As it seems to me, the field of engineering has on one side the scientific laboratory where the functioning personnel is the pure scientist; the physicist, chemist, bacteriologist, ets. and as the other side the utilization of the scientific discoveries in the economic and social world of today. In this latter the personnel is the skilled mechanic who constructs, installs, operates, services, etc. the mechanical instrumentalities of our civilization.

However, it has been little more than a generation ago that the machinist in the shop determined his cuts, speeds, routine, etc., perhaps even the material to be used for a given job. Today this is done by the engineer. Much the same could be said of the road or bridge builder, or of the fireman in a power plant. Today, under the pressure of greater production at lower cost, the equivalent thing is done in a far more scientific way by the application of the engineer's knowledge and viewpoint. Thus the discoveries of the scientist on one side and economic pressure on the other have greatly broadened the field in which the engineer functions, and what may have been adequate then is inadequate now.

So far we have discussed only technical aspects of the profession.. The social and economic aspects are of equal if not of more importance, for our profession, engineering, has been primarily instrumental in bringing to an acute stage the major problems that beset the country today and must do its part in their solution.

There are many other areas of economic life in which an engineering background is a valuable asset if not a necessity. In such areas it becomes, I believe, a matter of the kind of knowledge which can be best or easiest acquired "on the job". Most modern industrial organization now want some engineers on the board of directors, not for their technical knowledge, but for their engineering understanding. The largest industrial organization in the world, the United States Government, could with profit use more engineers on its board of directors: Congress

When the wide scope of the engineering field, extending as it does from the research laboratory of the pure scientist to the operation of the products of those laboratories, is considered, it seems obvious that four years of college training is inadequate now, granting that it may have been adequate twenty years ago. This comes from the fact that

See "Akers" on Page 8

PHYSICS
WITH DR. BROWN

ART MACHLIN

Professor Thomas Benjamin Brown, head of the Physics Department, believes that a thorough training in basic science is essential for all engineers.

"Not only specific tasks are important," he declares, "but the fundamental physical laws that govern them should be completely understood. "Thus," he continues, "engineers can adapt themselves, understand the theories of operation of new devices they encounter, and develop improvements of existing designs."

Like many physicists, Professor Brown started out to become an engineer. He studied E.E. at Cornell under Vladimir Karapetoff, but was more interested in physics and graduated in 1912 with the degree of A.B. in Physics. He then taught physics at Cornell as a graduate student, completing his Ph.D., with sufficient credits for an E.E. minor, in 1916.

When Dr. Brown came to George Washington in 1917, he was the Physics Department, except for one undergraduate assistant. Since then the Department has grown steadily and the new university bulletin lists a staff of thirteen.

The above photograph of Dr. Brown operating his apparatus for demonstrating the kinetic theory of gases, was originally printed in "Science Service" magazine. The wildly colliding ping-pong balls have performed for a large percentage of the student body, since the apparatus is used in Chemistry 11 lectures, as well as in Physics 8.

An outgrowth of Professor Brown's teaching experience is his textbook "Foundations of Modern Physics". Publishers became interested in the mimeographed form first used by his earlier classes, and Wiley & Sons, Inc., gave him a contract for its publication. Incidentally, Floyd Parker Richtmyer, "The Prof" to whom the book is dedicated, was the Dean of the Graduate School at Cornell, and a personal friend of Dr. Brown.

Physics 133, a continuation of Physics 132, is a new course to be taught by Professor Brown next fall, and is required of E.E.'s choosing the communication option. The two courses are designed to explain the principles of operations of electronic circuits and devices, using current application as examples.

Professor Brown feels that there is much more interest in physics now than before the war, but that students attracted to the field who are not genuinely interested will not remain in it. Physicists always were in demand and even during the depression found employment. The demand is now of course far greater, and the Department is short at least two full-time instructors. Among the many fields in which physicists are required for

Science Service Photo

development and basic research are electronics, optics, acoustics, radiation, and fluid dynamics. For his work at the Naval Ordnance Laboratory during the war, Dr. Brown received a "meritorious service" citation from the Navy Department.

Dr. Brown takes a justifiable pride in his family. His oldest son, Arthur Charles, an M.E. major and student assistant at George Washington, served with the Air Corps in the Pacific. Another son is in the Army and will return to the University of Pennsylvania upon discharge to complete his fourth year of chemistry and go on to graduate work. The youngest son, 15, now attending high school, has shown an interest in art. Dr. Brown's daughter, who studied art, is doing drafting work for the engineering section of the Telephone Company. She and Arthur Charles each have a son, making the Professor twice a grandfather.

Occasionally Professor Brown enlivens his classes with his dry humor. After a recent exam he quipped, "In correcting your papers I will give you the benefit of every doubt where legibility is concerned. By that I mean that I will doubt you know the correct answer."

As a sidelight during a lecture on blackbody radiation, he prepared "sanitary popcorn" for the class, popping the corn after it had been sealed in a cellophane bag. Salt and butter were not provided; when you take Physics 8, bring your own.

$6750 IN AWARDS ANNOUNCED by WELDING CO.

The James F. Lincoln Arc Welding Foundation has set up a ten year award and scholarship program for undergraduates of all branches to stimulate scientific study and research in general, and the development of the arc welding industry. Under the Award Plan, students submitting the best papers on arc

See "Foundation" on Page 8

the scope of the engineering field has steadily broadened at both sides and in all probability will continue to do so. On the side of the pure scientist the field has broadened due to scientific discoveries, this is generally appreciated. It is not so generally realized that an equal broadening has taken place on the applied side as well.

We frequently refer to the historical past in terms of a major materialistic development. Thus we speak of the "stone age", the "bronze age", the "iron age", etc. If we were to use the same terminology for the present period we would probably call it the "power age" for the development and utilization of power has probably determined our economic and social life of today more than any one other factor. Tomorrow we enter the "atomic age" and the engineer must play his part in that or find himself supplanted by the new engineer of the future with adequate training for the task he has to do. Just as our profession supplanted the technician who frequently retains the title and confuses the issue: witness, locomotive engineer, plant engineer, licensed engineer, etc., the adjective is a fairly recent addition.

So much for the problem, what of the solution? The broadening pressure has already lead to an attempt to cram nearly five years of college work into four. A process that, in my opinion has already gone too far.

The solution, I believe, lies in abandoning the purely "applied" aspects of our engineering curriculums to the technical schools and in recognizing that the highly specialized technical knowledge can better be acquired in industry than in college, assuming that the graduate has the thorough grounding in fundamentals which would then take our concentrated effort. Thus the engineering course of 1950 might be four years of engineering fundamentals with no qualifying adjective meaning more than an administrative division; plus the essential so called, "cultural courses". A fifth year of specialized work would follow for those whose interest was primarily technical.

THE HOBBY SHOP

Things are Never as Black as they Seem --

or any other color, at present.

The above bit of free philosophy refers to the outlook for the Hobby Shop. It is not the Death Knell, but merely the Best in Pieces. Pieces of equipment are currently stored here and there seeking that final resting place. The problem is space. At midsummer, the problem appeared solved by Dean Feiker's offer of the use of a wing of the drafting room at 23rd and G streets. Other difficulties arose, however and the project is still looking for available housing.

Remember, patience is a virtue.

IN MEMORIAM
NORMAN MATLOW
1926-1947

A conceing accident on August 3rd brought an abrupt end to the promising career of Brother Norman Matlow (XI 1946)..Enrolling in The George Washington University School of Engineering in 1943 as a mechanical engineering student, he began putting his training to immediate use at various military and governmental projects in the Washington area. His active interest in his profession was manifest by his enthusiastic participation in the programs of the student branch of the American Society of Mechanical Engineers, and he was a delegate from the University at a regional conference early in 1946. Pledged to Sigma Tau in 1946, he was equally assiduous in furthering the aims of the fraternity and gave abundantly of his talents.

His loyalty and devotion to those close to him by family, fraternal, or friendship's ties make his passing the more poignant for those of us who called him friend and brother.

RADIO WORKSHOP OFFERS PRACTICAL EXPERIENCE

A long talked-about organization, the Radio Workshop, has finally taken its place on the campus. Fully approved by the Student Council, it plans to go ahead with its activities of script writing and cutting records to be transcribed over local radio stations.

Engineers will have the opportunity to operate the record cutting machine and to become acquainted with equipment used in radio broadcast studios.

Future plans of the Radio Workshop call for a campus radio station; this will probably be realized through the cooperation of the student branch of the I.R.E.

Engineers interested in this project are welcome to attend a meeting to be held on Wednesday, October 29, at 3:00 P.M. in studio A of Lisner Auditorium.

FOUNDATION

welded design and machinery will be awarded prizes ranging up to on thousand dollars. In the Scholarship Plan, the schools of the Award Plan winners are given scholarships up to one thousand dollars.

For complete information, write to the James F. Lincoln Arc Welding Foundation, Cleveland, 1, Ohio, for the publication, "Annual Engineering Undergraduate Award and Scholarship Program.